

**Amendments to the Claims**

This listing of the claims replaces all prior versions and listing of the claims in the present application.

Listing of Claims

1-35. (canceled)

36. (currently amended) ~~Data~~ A data network implemented by a first network level (104) having a first addressing scheme and at least a second network level (108) having a second addressing scheme, each network level provides connectivity over at least one network domain, the data network comprising: ~~is characterised in that~~

a first group of Network Resource Managers, NRMs, ~~(b-d))~~ (b-d) that is arranged to control the resources of the first network level and a second group of NRMs (e-g) that is arranged to control the resources of the second network level,

wherein the NRMs of the first group (b-d) and second group (e-g) comprise means for communicating on a common network level and for exchanging resource requests by using the first addressing scheme, and

wherein the NRMs (e-g) of the second group further comprise means for performing an address mapping between the first and second addressing schemes.

37. (currently amended) ~~Data~~ The data network according to claim 36, wherein the first network level is the Internet

Protocol, ~~IP~~, (IP) layer.

38. (currently amended) ~~Data~~ The data network according to claim 36, wherein the second network level is a link protocol layer.

39. (currently amended) ~~Data~~ The data network according to claim 37, wherein the second network ~~layer~~ level is a second protocol layer controlling an overlay network on top of said IP layer.

40. (currently amended) ~~Data~~ The data network according to claim 37, wherein the second network ~~layer~~ level is a second IP layer controlling an overlay network on top of said IP layer.

41. (currently amended) ~~Data~~ The data network according to claim 40, ~~wherein it further comprises~~ further comprising a third network level having a third addressing scheme, the resources of said third network level ~~are~~ ~~protocol layer is~~ controlled by a third group of NRMs comprising means for exchanging resource requests with NRMs of the first network level using the first addressing scheme.

42. (currently amended) ~~Data~~ The data network according to claim ~~[[36]]~~41, wherein the NRMs of the third group further comprise means for performing an address mapping between the first and third addressing schemes.

43. (currently amended) ~~Data~~ The data network according to claim 41, wherein the third network ~~layer~~ level is a third

protocol layer controlling an overlay network on top of said IP layer.

44. (currently amended) ~~Data~~ The data network according to claim 41, wherein the third network ~~layer~~ level is a second IP layer controlling an overlay network on top of said IP layer.

45. (currently amended) ~~Data~~ The data network according to claim 41, wherein the third network ~~layer~~ level is a third protocol layer controlling an overlay network on top of said IP layer.

46. (currently amended) ~~Data~~ The data network according to claim 41, wherein the third network ~~layer~~ level is a link protocol layer.

47. (currently amended) ~~Data~~ The data network according to claim 36, wherein the NRMs within at least one of said groups are arranged in a hierarchical structure arranged to communicate with each other.

48. (currently amended) ~~Data~~ The data network according to claim 36, wherein each of the NRMs is a logically ~~centralised~~ centralized unit in a network.

49. (currently amended) ~~Data~~ The data network according to claim ~~[[47]]~~48, wherein said logically ~~centralised~~ centralized unit is distributed or backed up over several physical servers

50. (currently amended) ~~Data~~ The data network according to claim 36, wherein the data network in at least one of the network

levels comprises a Network Controller (NC) comprising means for receiving a request from an NRM and means for obtaining detailed information ~~such as~~ including at least one of topology maps, traffic measurement information, and alarms of the network domain that is controlled by said NRM in response to said request.

51. (currently amended) ~~Data~~ The data network according to claim 49, wherein the data network in at least one of the network levels comprises a Device Controller (DC) comprising means for receiving a request from the NC and means for controlling vendor specific node technologies in response to said request.

52. (currently amended) ~~Data~~ The data network according to claim ~~[[50]]~~51, wherein the DC is co-located with the NC in at least one of the network domains.

53. (currently amended) ~~Method~~ A method in a data network implemented by a first network level having a first addressing scheme and at least a second network level having a second addressing scheme, each network level provides connectivity over at least one network domain, the method comprising ~~is characterised in that it comprises~~ the steps of:

~~-controlling~~ controlling (201) the resources of the first network level by a first group of Network Resource Managers, NRMs, and

~~-controlling~~ controlling (202) the resources of the second network level by a second group of NRMs, wherein the first group

and the second group of NRMs comprises means for communicating on a common network level,

~~-exchanging~~ exchanging (203) resource requests between NRMs of the first and second group by using the first addressing scheme, and

~~-performing~~ performing (204) an address mapping between the first and second addressing schemes.

54. (currently amended) ~~Method~~ The method according to claim 53, wherein the first network level is the Internet Protocol, ~~IP,~~ (IP) layer.

55. (currently amended) ~~Method~~ The method according to claim 54, wherein the second network level is a link protocol layer.

56. (currently amended) ~~Method~~ The method according to claim 54, wherein the second network ~~layer~~ level is a second IP layer controlling an overlay network on top of said IP layer.

57. (currently amended) ~~Method~~ The method according to claim 54, wherein the second network ~~layer~~ level is a second protocol layer controlling an overlay network on top of the IP layer.

58. (currently amended) ~~Method~~ The method according to claim 53, wherein the data network further comprises a third network level having a third addressing scheme and the method comprises the further step of:

~~-controlling~~ controlling the resources of said third network level ~~protocol layer~~ by a third group of NRMs and

~~-exchanging~~ exchanging resource requests between any of the NRMs of the first and second network level using the first addressing scheme.

59. (currently amended) ~~Method~~ The method according to claim 58, ~~wherein it further comprises~~ further comprising the step of: performing an address mapping between the first and third addressing schemes.

60. (currently amended) ~~Method~~ The method according to claim 59, wherein the third network ~~layer~~ level is a third protocol layer controlling an overlay network on top of the IP layer.

61. (currently amended) ~~Method~~ The method according to claim 59, wherein the third network ~~layer~~ level is a second IP layer controlling an overlay network on top of said IP layer.

62. (currently amended) ~~Method~~ The method according to claim 59, wherein the third network ~~layer~~ level is a link protocol layer.

63. (currently amended) ~~Method~~ The method according to claim 53, wherein the NRMs within at least one of said groups are arranged in a hierarchical structure arranged to communicate with each other.

64. (currently amended) ~~Method~~ The method according claim 53, wherein each of the NRMs is a logically ~~centralised~~ centralized unit in a network.

65. (currently amended) ~~Method~~ The method according to claim

64, wherein said logically ~~centralised~~ centralized unit is distributed or backed up over several physical servers

66. (currently amended) ~~Method~~ The method according to claim 53, wherein the data network in at least one of the network levels comprises a Network Controller (NC), wherein the method comprises the further steps of:

~~-receiving~~ receiving by the NC a request from an NRM and  
~~-obtaining~~ obtaining detailed information ~~such as~~ including  
at least one of topology maps, traffic measurement information,  
and alarms of the network domain that is controlled by said NRM  
in response to said request.

67. (currently amended) ~~Method~~ The method according to claim 66, wherein the data network in at least one of the network levels comprises a Device Controller (DC), wherein the method further comprises the step of:

~~-receiving~~ receiving by the DC a request from the NC and  
~~-controlling~~ controlling vendor specific node technologies  
in response to said request.

68. (currently amended) ~~Method~~ The method according to claim 67, wherein the DC is co-located with the NC in the at least one of the network domains.

69. (canceled)

70. (currently amended) A computer program product stored on a computer usable medium, comprising readable program for causing

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a computer, within a router or a server in [[a]] the data network  
to control an execution of the steps of claim 53.